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ARCHEOLOGY AND ETHNOLOGY.<sup>1</sup>

**The Antiquity of Man at Petit Anse (Avery's Island), Louisiana.**—In digging fifteen and twenty feet through superficial soil into a very pure deposit of rock-salt, on a low hill at Avery's Island, west of New Orleans, some miners found, on the authority of Mr. T. F. Cleu (quoted by Professor Henry of the Smithsonian Institution, *Trans. Chic. Acad. of Sciences*, Vol. I, part 2), a fragment of ancient cane matting near the top of the salt, and fourteen feet below the surface of the soil.

What made the discovery noteworthy was Mr. Cleu's statement (see Foster's *Prehist. Races of the U. S.*, p. 56, and Nadaillacs *Prehist. America*, p. 36) that remains of the tusks and bones of a fossil elephant were found in the same soil two feet *above* the matting. Professor E. W. Hilgard and Dr. E. Fontaine afterwards (1867) said they found incredible quantities of pottery mixed with elephant and other large fossil bones at a depth of 12 feet below the surface.

By that time a good deal of digging for salt had been done in the mines by white men, and the investigators of the locality seem to have drawn their deductions from what they saw and what they heard from workmen in these pits. Some of the observers thought that the layer of loam covering the salt had been washed down from the surrounding hills. But its age would have been best settled by geological data of the bones it contained if the bones were in situ.

Whether the fossil bones were part and parcel of the loam or not, the important question is—were the human remains (basket work, pottery, etc.) contemporary with the fossils, or were they not contemporary? And this has not been settled, for we do not know whether the comparatively modern Indians dug pits through the loam down to the salt just as the white men dig them now, and whether, in such case, their pottery and basket work finding a way naturally to the bottom of their pits, had not thus become mingled with an underplaced bed of animal remains already resting on the salt.

Comparatively recent peoples in Europe have dug graves and buried skeletons on cave floors so as sometimes to let down their relics into more ancient company when the graves happened to penetrate in-

<sup>1</sup> This department is edited by H. C. Mercer, University of Pennsylvania.

to older geological layers, and thus the most modern object in the world can be intruded into the most ancient stratum known.

Until this question of previous salt-pit digging by Indians is clearly settled, we must remain in the dark as to the meaning of the objects thus far found at Petit Anse.

The following notes upon a recent examination of the spot by the late Dr. Joseph F. Joor, has been kindly sent me by the President of Tulane University, of New Orleans.—H. C. MERCER.

**Notes on a Collection of Archeological and Geological Specimens Collected in a Trip to Avery's Island (Petit Anse), Feb. 1st, 1890. By Joseph F. Joor, M. D.**—About the end of January, 1890, President Johnston, of Tulane University, learned that the New Iberia Salt Co., in opening a new shaft, had exposed a number of Indian relics and remains of extinct animals. As the Professor of Geology could not then leave, he requested me to proceed at once to the spot, and secure as many specimens as possible for the University Museum; also to learn all I could of the Archaeology, Geology, and Natural History of the Island.

Accordingly, I left New Orleans, January 31st, reaching the Island the same evening. I was most agreeably and hospitably entertained by Mr. and Mrs. McIlhenny and the Avery brothers, who also gave me valuable assistance during the eighteen days' of my stay. The officers of the Salt Company also extended many courtesies, without which my work would have been greatly hindered.

The excavation formed a rectangle about 50 x 90 feet at top, and 30 x 70 at bottom, with sloping sides—the greater length being north and south. The depth to the salt varied from 16 to 25 feet. The layers penetrated at that time, at the northwest corner, were:

- 1st. Soil, 6 inches.
- 2d. Yellow clay, with some sand, 4–6 inches.
- 3rd. Black stiff loam, or swamp muck, 10–12 feet (pottery bed).
- 4th. Blue clay, with pebbles (bone bed), 2 feet or more.

This last was only partly removed at the time of my arrival, and from it came our paleontological specimens. Immediately below was the salt, with a very irregular surface, its hollows filled with the clay, which thus in some spots was nearly ten feet deep. The upper layers varied considerably in different parts, both in relative thickness and character. At the northeast corner, for instance, the yellow clay is partly replaced by sand. But the most important differences were in the loam. At the north end, near the northeast corner, a hollow,

probably the work of human hands, was scooped in the upper part of this layer to a depth of 3 or 4 feet, and completely filled with *ashes*, containing thousands of bits of pottery. One of the sloping approaches of the shaft was cut through this deposit, exposing a section about 10 or 12 feet long (north and south) by 4 or 5 feet wide, where it abutted on the main excavation. On the east side, 20 or 30 feet from the northern end, was another rounded hollow in the loam, 10 or 15 feet wide, where it was cut across, and 5 or 6 feet deep in the middle. This was filled with *sand*, mixed with black vegetable mold. At the north side of this, and extending into the adjacent part of the loam, were other bits of pottery, less numerous than in the ash bed, but in larger pieces. Here were found our largest specimens of earthenware.

Ten or twelve feet southwest of this last spot, and inside the rectangle of the shaft, was a live-oak stump, over 2 feet in diameter, and 3 or 4 feet high, with its roots still fast in the upper part of the loam on the east side, but tilted over to the west, as if it had been on a caving bank. The upper part of this was broken off as if by a tornado. The wood was still sound, and so tough as to necessitate the use of dynamite for its removal. It was considerably stained, as if by the infiltration of *iron*.

In the corner was what looked like a gully, 6 or 7 feet deep, hollowed in the loam, and filled with a mixture of ashes, sand and vegetable mould, with a few pieces of earthenware. Through this a pretty bold stream of water entered the excavation. All these inequalities in the loam were covered and approximately leveled by the yellow clay.

All of the larger pieces of pottery, and most of the smaller bits, were entirely destitute of ornamentation. Some of the lesser pieces, however, are marked with patterns of various kinds. Some show lines, generally oblique, apparently drawn with a pointed stick; others dots, looking as if they might have been made with a bit of cane. But some appear to have been *stamped*.

Our largest specimen represents rather less than half the circumference (at top) of a jar about 9 inches in diameter, and over a foot deep—the bottom entirely gone. It seems to have been somewhat narrowed below. This was broken into eight pieces in extricating it from the mud. Many of the other fragments indicate still larger vessels. They are all very thin and exceedingly fragile.

Before my arrival the workmen found two or three whole jars, which, however, were immediately smashed, probably from the idea that they contained treasure. Superintendent McCalla, however, rescued a large piece of one of them, which he presented to us. It is about half of the

lower segment of a jar nearly four inches in diameter, but narrowed at bottom. The fragment is about  $5\frac{1}{2}$  inches high. These jars were found near the oak stump.

Near the southern end of the excavation a piece of cane basket was exhumed. It was taken—still in the lump of mud—to Mr. E. McIlhenny, who still has it. It is of a very coarse make, and about 4 inches square. Mr. McIlhenny has given us the lump of mud with some bits of cane still sticking to it, and the impress of the remainder. It seems to have come from the lower part of the loam, below the level of most of the other human vestiges.

Mixed with the pottery everywhere were bones (mostly those of deer) with shells of a small tortoise, and of the same clam now found in Lake Ponchartrain—*Gnathodon cuneatus*; also a few mussels (*Unio*).

The loam was generally penetrated by small roots, most of them apparently those of marsh grasses or cane, with some of exogenous trees or shrubs. On the east side there were a good many leaves of live oak (*Quercus virens*), wax myrtle (*Myrica cerifera*) and others not identified. Some of these leaves (oak, myrtle and others) were *still green*. This phenomenon I can only explain by supposing the freshly fallen leaves to have been buried under a caving bank, and hermetically sealed by the stiff, waxy soil, which had never since become dry enough to admit the air. The leaves began to fade within half an hour, and in three hours had the ordinary brown color of a macerated leaf. They were seen while green by Manager John H. Hamilton and Mr. Hausman of the mining company; Capt. Jas. Hare, of the U. S. Lighthouse Service, Mr. and Mrs. McIlhenny, Capt. Dudley Avery, and others.

We also found, at the same spot, some bent and twisted strips of bark, that were, perhaps, handles of baskets. They are badly decayed, however, and do not prove much.

The managers of the mine conjectured that the ash-bed marked the site of a pottery kiln, while the hollow in the loam on the east side was made by digging out material for the ware. But, to my eyes, the hollow looked more like the work of nature. I rather lean to the opinion that the ash-bed indicates a *furnace* for boiling down the brine of a salt spring, and that the pots were used for that purpose. Both theories may be correct.

I see no reason for assigning any very enormous antiquity to these relics. Most of them were covered by 5 or 6 feet of loam or less, and about the same of yellow, sandy clay and soil. The two last layers appear to be a "wash" from the neighboring hills, and may have been formed within a century, while three or four hundred years would be

enough for the loam, especially if there was a slight gradual subsidence, so as to keep it subject to overflow. The deeper specimens were found near the south end, where there are signs of a gully or hollow of some kind, which would fill more rapidly than the higher ground, if the cause which produced it were removed.

It is somewhat remarkable that not an arrow-head, weapon or tool was found in the excavation, although such articles are not rarely found at or near the surface, in the neighborhood.

In the blue clay, 16 to 20 feet from the surface, and immediately overlying the salt, were an immense number of bones. Unfortunately, most of these were badly decayed, and the clay very tenacious, so that most of them were destroyed. The Avery brothers, however, secured a good many of them, in the early stages of the work. Most of these they gave to Mr. McIlhenny, the rest to this University. I secured several hundred teeth, bones and (mostly) fragments, after reaching the ground. These represent the following animals:

A small Mastodon.

One or two species of Equus.

*Mylodon harlanii*.

Of these I am pretty certain. It is probable that there are also one, or possibly two, other Giant Sloths, a Deer, and possibly an Elephas. There are other remains which I cannot name, even conjecturally.

Of the Mastodon we have two teeth (one badly broken). Here also I place an atlas and a number of other vertebræ; but part or all of these may belong to Elephas. I was shown a tooth of that genus, said to have been found in this shaft. All these remains indicate an animal about 8 or 10 feet high.

To the Giant Sloth I have referred a fragment of an upper jaw, with an anterior molar in good order; another fragment of upper jaw much broken, with two molars and parts of two others; twenty-five detached teeth, many of them broken; two claw cores, nearly complete; a humerus, broken in two, with fragments of two other humeri; fragments of heads of two femurs; lower end of a tibia, and an astragalus. Here also I would place, very doubtfully, a number of vertebræ, with the visceral face of the body deeply excavated, as if for the lodgment of the aorta, with side channels leading right and left, as if for the passage of lateral branches.

I have referred most of these provisionally to *Mylodon harlanii*, as most of the teeth seem to belong to that species, while the claw cores are too much curved for *Megatherium*, and not enough curved for

**Megalonyx.** Some of the teeth, however, seem to belong to a different genus. Some years ago, Capt. Dudley Avery found a claw core, which he sent to the Smithsonian Institution, and which was there pronounced to be that of a *Megalonyx*. This was found near this spot, and in a deposit of the same age.

Part of the antler of a deer was found in the southeast corner of the excavation; but I am not certain whether it came from the blue clay, or from the much more recent deposit containing human vestiges, which here dips down almost to the level of the salt. In the blue clay, however, near this spot, we found vertebræ resembling those of a very large deer, with four molar teeth of some herbivorous animal, probably a ruminant, whose precise affinities are yet undetermined.

Among the miscellaneous specimens are water-worn fragments of coniferous wood, from the blue clay. These are in perfect preservation. There is also a soft stercoraceous mass, found about the junction of the blue clay and loam, apparently the dung of some large herbivorous animal.